

An
Inaugural Dissertation
on
Cantharides

by

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New Jersey

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A Dissertation On *Cantharidis*

The natural history, appearance & habitus of these insects, and the manner of preparing them for medical use, with their application and utility in diseases, will constitute the subject of this Essay.

They are an insect of the beetle kind of the genus *Cantharis*, having a longish body, with a lively tinge of blue and green, interspersed with a golden hue and are found in Spain, Italy, France and most of the other countries of Europe, in large swarms, destroying the foliage of different kinds of trees, from which they are shaken into cloths, & then immersed or exposed to the fumes of vinegar, and carefully dried either in the sun, or a stove. There are several

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species of them, but the one held in the highest esteem, is the *Meloe vesicatorius* or *Lytta vesicatoria*, though the others are not inert, especially the species found in this country, the *Cantharis vittata* or *Lytta vittata*, or potato fly, being chiefly found on that vegetable. It is an insect of the same configuration as the above described, but smaller and of a different colour consisting of, red black & yellow variously distributed, but possessing the same properties & applicable to the same diseases.

From the analysis hitherto made of *Cantharides*, they appear to consist of alcoholic and watery extract, few acetic acid, phosphates of magnesia, a reddish yellow oil soluble in alcohol, uric acid, and a peculiar crystalline substance soluble in warm alcohol but separating when cold and insoluble in water. It may be prepared according to Dr Thomson in the following manner;

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Boil them in water, till every thing soluble
in that liquid is taken up, concentrate the
solution by evaporation to the consistence of a
thick syrup; then boil it repeatedly in alco-
hol, till it ceases to act on it; evaporate gently
the alcoholic solution to dryness, and put the
dry residue in a phial with sulphuric ether;
agitate the mixture, till the ether acts upon it;
when it assumes a yellow colour. Decant it
off and let it evaporate in the open air, It
deposits in small crystalline plates mixed
with a yellow matter. This yellow matter is
taken up by alcohol, which leaves the crystalline
plates. These plates are dried between blotting
paper & is the substance which Dr Thomson
calls cantharidin, but equally to propo-
pose cantharum would be more proper. The
substance thus obtained is in small shining
plates, insoluble in water & cold alcohol, but
ether & warm alcohol dissolves it; but the last

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on cooling parts with it. Oils act on it very
readily. It associates with great energy & appears
to constitute the active principle of the Fly.
(Having thus detailed in a summary man-
ner, the history, analysis &c of Cantharides
I proceed to the consideration of their sensible
properties, & effects upon the system, their
modus operandi, & use in the management
of Diseases. They have a peculiar nauseous
smell, and a very acid burning taste.
Taken internally, they often cause Haematuria,
attended with very great pain & in more
considerable doses inflame & ulcerate the
intestinal canal; Mucous & purulent discharges
often take place; the breath is fetid & +
cadaverous; intense pain in the abdomen
followed by syncope & sometimes delirium
& finally death.

Applied to the surface, they in-
flame & afterwards necrose the parts, pro-

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ducing an effusion of serum & if long continued
gangrene. Even their application in this man-
ner is often attended by strangury, with some
degree of fever & thirst. This however seems to
be a fortuitous circumstance, as it is produced
by other substances as the *planum nigrum*, *ham-
phra opium* &c. but in what manner they pro-
duce this effect is not yet fully determined.
By some it is ascribed to the absorption of their
acid articles into the circulation & thus acting
through the medium of the blood, & by others
to sympathy. But this difference of opinion
leads to no difference in the treatment of such
cases, the inconvenience being generally re-
moved by drinking bland & emollient liquids as
milk & the different emulsions. The discrep-
ancy that exists as to their *modus operandi*, is not
as related to their stimulant & evacuant prop-
erties, for it is now generally believed to be by
a peculiar stimulation which appears to be of

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a cordial & ~~stimulating~~ nature; but how
that stimulus is imparted to the system, whether
by sympathy or through the medium of
absorption, is not as yet determined. But in a
practical view of the subject, it is not so impor-
tant, to know the medium through which this
is effected, as to keep steadily in view, that prin-
ciple which is laid down as regards the living
body, that by exciting a new & different impress-
ion, an existing morbid one may be removed.
and it is on this principle that they produce
their beneficial effects in the cure of diseases.
Admitting the principle to be correct, in rela-
tion to the article under consideration, it re-
quires great discrimination & judgement in
its applications, which is only to be acquired
by careful observation & just deductions there-
from, aided by the experience of others.

Before proceeding to their applications in
the cure of diseases, it may be necessary

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to promise something of the rules laid down
 for their employment, as a vesicatory.
 1st The Blister should remain on till it chafes,
 which is generally, from 8 to 12 hours, though in
 children & those of delicate skins a much shorter
 time is required; but on the head, doubt
 that time; And it is a curious fact, that by re-
 moving the Pain some hours previous to its
 being applied, if the case will admit. Strangu-
 ry will be prevented, and is necessary not to
 continue it too long, or gangrene may be in-
 duced. In local affections and all the phlegma-
 tics, we are directed to apply the Blister of popu-
 ple over the seat of the disease, & as large as
 the nature of the part will allow, In persons
 liable to strangury or when much pain is
 excited, the Blister is to be removed after 2
 or 3 hours, & the part bathed with a mixture
 of Olive oil, or lard, & Laudanum, and re-
 apply it. If this does not succeed, an emol-

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lient poultice is to be substituted which
will calm irritation & produce well filled
vesicles. To prevent & do away the use of steam-
gery, the use of calumet drinks is pre-
scribed as Thapsia tea, barley water &c. and
in violent cases, fomentations to the parts
warm bath, Opium &c. In cases of high
action the system must be reduced by V.S.
and the other means of depletion, or they
aggravate rather than remove the disease.
Blisters when applied in the very ad-
vanced stages of disease, from the loss of tem-
perature & fulness of action do not draw,
or else very imperfectly when applied to
the extreme parts of the body. It is therefore
in such cases best to put them on the breast
back &c. In adjusting a blister we must be
careful to secure it from slipping by ban-
dages & adhesion strips & in low states of the
system if its drawing is doubtful, friction

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with turpentine, or a sinapism, may be ap-
plied. The dressings most usually applied
are simple cerates spread on linen or wetted
cabbage leaves; & to keep it open, Savin or other
stimulating ointments.

Having advanced thus far in my
enquiry, I shall now proceed to consider
them in their most interesting relation,
as means of combatting diseases which doubt-
less in many instances, without their aid
would terminate the life of the unhappy
sufferer. Beginning with the febrile disease,
in all of which they are now a life use-
ful, intermittent fever. First present to itself
Though the remedy in this disease is not
generally employed, yet there are cases in
which no doubt exists as to its utility.

As a prevention of the paroxysm, ^{applied} so that
their impression may be felt at the mo-
ment of accession, we have numerous at-

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testation & by their constant application to
the extinction the train of morbid associa-
tion has by the irritation thus produced
been completely subverted. But it is in ob-
stinate cases & those attended by visceral
congestion & inflammatory indurations
that their best effects are observed. Accord-
ing to Dr KRIEGER in all those cases of acutem-
tal intermittents whether quotidian, quartan
or tertian when the bark does not succeed
after 3 or 4 days trial, it leads to the most
felicitous cure. Their propriety in contin-
ued fever is still more questionable. By some
writing they are altogether condemned -
among whom is Dr Fordyce who conceives
that instead of mitigating or arresting the
disease in any manner, they prove an
accessory cause, by the irritation they pro-
duce; while others hold a more qualified
if not directly opposite sentiment -

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This discrepancy of opinion seems to be owing to the circumstance of their being applied in two different stages of the complaint, the early & now advanced, for according to Professor Chapman nothing can be more opposite than their effects in these two stages; in the first invariably doing harm while there is much arterial action & proving beneficial in properly reduced states of the system, the fever under consideration being generally of a bilious inflammatory nature except in counties where it mostly runs on the living of Typhus. The practice which naturally arises from this view of the case & disease in question, & which is sanctioned by the last mentioned authority, and the general practice is to resort to Bleeding, in the form of these cases, after thorough evacuation of the alimentary canal, & reduction of the arterial system, & now especially of verging towards typhus.

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or has assumed the typhoid form. Taught
from the nature of Yellow Fever, as revealed
by dissection as well as the symptoms, that it is
a highly gastric affection, our remedy is resorted
to early & with much advantage. It is recom-
mended to be applied to the region of the
Stomach. Deducing the practice from the
pathology, we are directed in Typhus from
which is considered as a cerebral affection, in
conjunction with the many of obstructing con-
gestion & inflammation in that organ, to apply
a blister to the whole cranium. What would be
the result of their application to the spine as
has been proposed, appears not to have been de-
cided by experiment but judging from its con-
nexion with the brain & influence over the ani-
mal economy, there is reason to think, they might
prove of great advantage.

Having briefly considered their use in
Fever, the application of them to the order of

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Phlegmasia, must engage attention, in all of which they are employed with great utility. In all the acute pneumonic cases, after arterial is reduced, they are resorted to with advantage, & are to be applied over the immediate seat of the disease, yet there are not wanting those who deny their usefulness, but the weight of authority inclines to an opposite belief, though in *Phlegmasia* occurring in debilitated habits & *Pneumonia* & other of the aged, they are usually resorted to without previous depletion. To the anginous affections, particularly *Aneurysm*, *Torsion*, & *Stricture*, after the preliminary measures above indicated, they are well suited, also in inflammatory affections of the Digestive apparatus, more especially *Gastritis* & *Proctitis*, *Enteritis*, being we are told, next in efficacy to *U.S.* The same may be said in respect to *Hepatitis*, *Splenitis* & other visceral inflammations. All authorities agree as to their utility in *Phlegmasia*

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tion, when applied after general & profuse
topical bleeding, though it is in the chronic form
they show most decidedly their power, especially
when suppuration is induced. Their applica-
tion to the part in regular Gout, has been recom-
mended & judging from analogous, the inference
would seem favourable, but we are taught the
contrary, & it has even been alledged that they re-
pel the disease to parts, more important to
life, but for this assertion there appears to be
no foundation; by Professor Chapman it is ut-
terly denied, he considering them as one of the
best means in its irregular & retrocedent forms
to invite & fasten ~~them~~ it down on the exte-
rior by applying them to those parts; & he like-
wise recommends when it attacks the abomi-
nary canal, lungs liver, brain, &c. to apply them
over the seat of the complaint. In inflamma-
tions & congestions of the brain they are particu-
larly indicated especially in Phrenitis in which

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they confer decided power. Of Applying the
same, may be advanced, though there is some
diversity of opinion as respects the part to which
they are to be applied, whether the head or
the extremities, but the preponderance is in favour
of the former position. In paralytic the affected
part having lost ^{its} susceptibility to impression, their
application to the seat of the disease would be near-
ly inert; but advantage is derived from them
in other situations, as the back of the neck &c.
They are likewise a principal part in the treat-
ment of Hydrocephalus, proving most useful when
suppuration is induced. Not less are they used
in local inflammatory affections, particularly
inflamed joints & being & by Professor Physick, con-
sidered an invaluable remedy; also Subor & man-
many swellings. The practice introduced by Dr
Kistler of this city in treating malignant dysipelas
by Potashes & which is attended by such signal
benefit, has from analogy been extended by

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Professor Physics to the management of gangrene
with almost complete success. Of the utility of the
remedy in most of the diseases of the order Pe-
gioniae, we have the concurrent testimony of most
of the writers on the subject. Of the one which, most
forcibly strikes the attention is Dysentery though
the propriety of thus locating it, is questioned, espe-
cially when it assumes the inflammatory type
& has been placed in this order. Phlegmasia is
but whether it belongs to one or the other, history
comes in with manifest advantage, after the
preliminary measures for reducing vascular
excitement; & they are thought to be of most service
when applied to the abdomen. They are also ser-
viceable in chronic Morbus when applied to the
stomach to check vomiting, & in exhausted states
of the system to the extremities. Diarrhoea when
protracted is well managed by blisters being
alternately applied to the ankles & wrists.
So soon of the cases of Hemorrhage this practice

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Has been applied with success. Likewise in many
of the *Leucorrhoea* & especially to sustain the system
in typhoid & confluent small pox & when the erup-
tion recedes, to recal them to the surface. Of the
numerous spasmodic affections, I shall only men-
tion a few of the most prominent. In Epilepsy
caused by a morbid constitution of the brain, they
fail in common with the other modes of practice
but in that form which is dependent on a certain
mobility of the system & disordered stomachs, recur-
ring periodically, they sometimes by being applied
successfully to the stomach, afford relief. Cases are
also recorded of their utility in tetanus by applying
them to the spine. The chest is the seat of many af-
fections of this nature, which are not unequivocally
benefitted by our remedy as Asthma pertussis
& Angina pectoris. There are also other diseases
of the chest of a different nature from the prece-
ding in which they are still more employed as
in Pulmonary consumption, where any inflam-

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mentary action exists proving them with other means
of reducing vascular excitement; but in the suppuration
stage they are considered negative if not mischief-
ous. Their efficacy in Pleurothorax is little better
established, it being generally of an inflammatory
nature. So Asthma & Anasarca there is some evi-
dence of their utility but their general employment
is considered hazardous, frequently in the latter
case inducing gangrene.

Having in a cursory manner considered their
application of utility as vesicatory, in a variety
of diseases to which Humanity is subject, I shall
in concluding this enquiry briefly notice their
internal administration in a few diseases in
which they are thought serviceable. In Pertussis
& Croup of low action they are principally used.
In the former they are given till the urgency is in-
duced at which juncture the complaint generally
gives way; also in incontinence of urine they
have been recommended, & they are exhibited

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either in substance or Tincture, the dose of the
former being from 1 to 2 or 3 grains, & of the latter
from 20 to 30 drops.

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